

My 33 Hot Rod Build

The Amateur Build of a Kit Car

tab

 March 18th, 2010  1 comment

Admittedly, I've done a fairly poor job of keeping this blog updated regularly.

I see this blog as a way to show people my progress in a well thought out condensed manner. The absolute best way to see what I'm doing in realtime is to watch my [twitter feed](#). While I'm working on the car, I'll often remove my gloves, snap a photo, and post it with a commentary. The other day, after a jack stand slammed down on my hand, I twittered about it before using direct pressure to stop the bleeding.

I've made some decent progress since my last post and will be writing a new post with some detailed photos soon.

Thanks for reading!

 Mark  Uncategorized 

arf

 November 3rd, 2009  3 comments

If you're unconcerned with boring detail, scroll down to the bottom of this post and look at the pictures.

It went unposted, but this spring I was able to mount the upper and lower control arms for the front suspension, but not the shocks, spindles, or anything outboard of them. That's how the car sat during the summer.

Since my last post I've made decent forward progress. Over the summer, I received most of my backordered parts. This made things a lot easier. I understand that the list of backordered items is smaller when you receive a new kit these days. The 33 Hot Rod kit is about a year old now. My car is chassis number 44 (the first few were prototypes).

It took me a few hours to get reacquainted with the garage, my tools, and how I stored all the parts. The first thing I did was unpack all the parts which had arrived over the summer and put them on the shelf.

I'd now like to confess to a very stupid mistake that I made early-on in the name of "organization." When I first received the kit, I unpacked every box, checked its contents against the packing list, labeled and bagged each part and placed it on the shelf. That sounds smart until I realized that the manual said things like "attach the steering rack with the supplied hardware." That'd be great if I hadn't separated the "supplied hardware" from the steering rack itself and the "supplied hardware" wasn't sitting in a bag on the shelf with a part number on it. Back to the packing list, find the description of the hardware, lookup its part numbers, pull it off the shelf. I'll go on the record and say that this system will add 10% to the length of my project.

After unpacking the new parts, I thought I'd ease myself back into the process by assembling the shocks. I read how to do it in the assembly manual and it looked very easy. I was a little bit over-focused and when it said to put the snap ring on, I began looking in all my parts bags for the snap ring. Then I began thinking "oh great! I don't have the snap ring!" After another search through the bags, I realized that the snap ring was already on the shock and it needed to be removed and reinstalled in the assembly process. The omission of the sentence "remove the snap ring from the shock and set it aside" in the manual highlights a need for people like me. The first shock took me an hour to assemble. The other three took less than 10 minutes combined.

Happy that I finally had the shocks assembled, I finally began installing the fronts. Factory Five provides spacers for each side of the shock mounts. Maybe it's the added thickness of the powder coating, maybe some warping from final welding. Maybe both, but my spacers were too thick. I've read about other guys just cramming them in or using a breaker bar to spread the opening and then cramming them in; both sounded like poor options to me. I want everything to fit just right, so I spent quite a while with my bench grinder, grinding each spacer evenly (to keep the shock centered in the mount) until everything fit perfectly

evil

[follow me on Twitter](#)

 [RSS feed](#)

-  [Sheetmetal Progress](#)
-  [Firewall Mock-Up](#)
-  [Updating](#)
-  [Status Update](#)
-  [Delivery](#)

A

-  [March 2010](#)
-  [November 2009](#)
-  [October 2009](#)
-  [March 2009](#)
-  [February 2009](#)

C

-  [Uncategorized](#)

it&M

-  [Log in](#)

I set my sights on attaching the spindles next. I tightened the castle nuts as best I could but wasn't able to achieve the proper torque specification of 125 ft-lbs. without a new set of crowfoot wrenches to fit on the end of my torque wrench. I ordered a set from sears.com and turned my attention to assembling the pedals.

After 15 minutes of searching my efficient inventory system for the illusive "self seating stud" I attempted to attach the pedal box to the chassis. After much chagrin and close reading and rereading of the instructions, I stumbled upon the proper procedure of how to get the nut to tighten on that stud without it turning! The procedure is: Let the pedals weight hang on the stud (in fact you can even add some weight if necessary with your hand) and simultaneously tighten the nut. The weight of the pedals will allow the stud to "seat" and not turn as your turn the nut.

I thought I had the pedals whipped into shape until I began playing the let's-try-to-swap-out-the-shaft-in-the-clutch-pedal game. Replacing the shaft is necessary in order to accomodate the clutch quadrant specific to this car. The assembly manual didn't mention replacing the brass washers that are on each side of the clutch pedal but I have no doubt that Wilwood (the maker of the unmodified pedal box) put them there for a reason. I imagine Factory Five left out mention of those washers to prevent uncontrolled profanity-laced outbursts and fits of rage. Maybe it was just an oversight.

It's funny how things sometimes have a ripple effect. After installing the new shaft and the clutch quadrant on the end of it (retaining the stock brass washers), I had to grind down the sleeve which fixed the clutch quadrant to the clutch pedal because of the added thickness of the thin washers. I took me about 30 minutes to meticulously grind down the sleeve and re-chamfer then end of it by using a hand file. It fit beautifully, and I was pleased...for all of a minute.

That stupid self seating stud was too long! It was preventing the sleeve for the clutch quadrant from passing over it. Using a zip tie to hold the clutch pedal and quadrant sleeve out of the way, I used a very small ball grinder on the end of my Dremel to precisely shorten the length of the stud. I left about 1/16" clearance.

Following that debacle I set myself up for a layup. I took the master cylinders out of their boxes, threaded them into the adjusters on the brake pedal and attached them to the pedal box without incident.

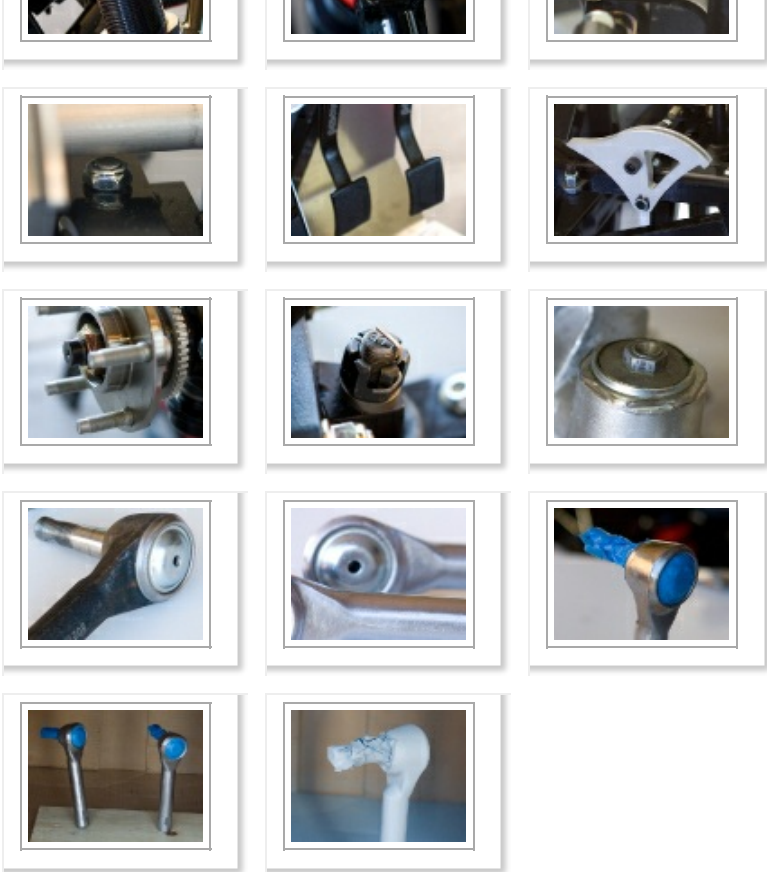
My crowfoot wrenches soon arrived from Sears and my 11-year-old son John and I focused on applying the proper torque to the castle nuts so the spindles stay on the car. Applying 125 ft-lbs. of torque with a 24-inch long torque wrench is not very easy but we were successful. Cotter pins prevent a catastrophic accident in the event that those nuts somehow loosen.

A 36mm socket is required to attach the hubs. Before the hubs can be tightened, they have to be slid onto the spindles. I lucked out and the driver's side hub just slid right on with no interference. The passenger side required some gentle heating with a propane plumbers torch (the very same one I use for crème brûlée!) before it slid on nicely. I'm still waiting for my friend John to stop by to hold down the rear of the car while I torque the passenger side hub nut to 235 ft-lbs!

FFCobra.com is a great resource; without which I wouldn't be capable of building this car (as the manual assumes you already know that the snap ring is attached to the shock). Many experienced builders and mechanics regularly participate in the discussions there. Having read the threads and seen photos of the other current 33 Hot Rod builds, I knew in advance that the collar around the shaft on the steering rack would need to be ground down in order to create enough clearance for the rack to be installed. I finally had an incentive to install the proper fittings and get my shop air compressor up and running. I spent some time at Home Depot getting parts for that. I'm glad I did because my pneumatic cut-off wheel made very short work of the tabs on the collar. Afterwards, I dressed the cut using my Dremel; making it look nice.

The steering rack is ready for mounting but I wanted to have the tie rod ends ready to mount to the steering arms when I mount the rack. I seriously considered having them powder coated but decided not to when I noticed what looks to be some sort of urethane surface inside the ball joint on the ends (the powder coating process bakes the parts at 400 degrees fahrenheit and I was concerned about the urethane being damaged). I decided on using paint from a rattle can. The way I see it is in a worse case scenario, I can always ditch the paint and have someone better than me do it right. Using an angle grinder, I prepped the very rough metal on tie rod ends for paint. I was surprised at the level of smoothness I was able to achieve. They're currently in primer in my custom Factory Five paint booth (see photo). If you never hear anything about them again...it never happened.





 Mark
  Uncategorized
 

atS

 October 23rd, 2009

 2 comments

It's been a long time since I've posted on this blog. The morning after the post previous to this one we received news that my wife's nineteen year old cousin in Michigan had died. I have three young children and they all looked up to him like he was a rock star. Telling them the news was one of the most difficult things I've ever had to do.

The event sent shock waves through our family and when we returned from the funeral in Michigan, I didn't feel much like working on the car.

By mid-May it was starting to warm up here in Arizona so I began the process of putting air conditioning in my garage workshop. On the day I received the final estimate for the work, I received a phone call from my older brother in which he told me that his fiancé had suddenly fallen ill and was being transported to the hospital by ambulance.

Eleven hours later, my mom and I were in a Virginia hospital with my brother and his fiancé, Victoria. The prognosis was not good. She'd suffered a heart stoppage for an indeterminate period of time and was in a coma. Initially, the doctors weren't able to ascertain the extent of the damage.

After eight days, she passed away and went to be with the Lord. I returned to Arizona and the following week my wife and I again flew to Michigan for a funeral.

On the day after I returned from Virginia, it was reported that my business partner's dad was missing while hiking in the Grand Canyon. He was expected back at work, but hadn't returned yet.

After a nine day search (in which his family participated as much as they were allowed), his body was found at the bottom of a drop-off alongside one of the hiking trails. He had been an experienced hiker and outdoorsman, but he somehow lost his footing on a narrow portion of the trail.

During the last week of June, we took a vacation to our ranch in Colorado. After decompressing in the mountains, we stepped off the plane and immediately attended my friend and business partner's dad's memorial service.

Forty-eight hours later, I was back in Virginia to help my brother pack and move for the next eleven days. He's a Lt. Colonel in the U.S. Air Force and this move had already been planned so he could assume his new command in Hampton, Virginia.

At the end of July, my wife, our kids, and I took our annual vacation to Michigan to see family

and friends. We were gone for ten days and were able to relax and begin to put the year's events into perspective. On our last day in Michigan, we were able to spend a Sunday afternoon eating lunch and visiting with my aunt and my grandmother. Unfortunately, a couple days after that, my grandmother was admitted to the hospital and passed away a couple weeks later. It was fantastic to have that time in Michigan to talk with her. She was a really neat lady. She was eighty-five.

When I began writing this post, I wasn't sure how long it would be or how much I was going to share. Life has been very difficult in the past six months. Our faith in God has been tested, but not shaken. Our lives will never be the same, but we can still be joyful. Now, more than ever, I see that people and relationships are most important in life.

I'm really looking forward to finishing this car with my children. In the past month, I was able to finally have air conditioning installed in our workshop and this weekend we're going to pick up where we left off.

New progress updates to follow soon!

God is good.

 [Mark](#)  [Uncategorized](#) 

015

 March 30th, 2009

 [No comments](#)

Progress has been slow lately. I'm still waiting for parts from Factory Five, I was on vacation for a week, I had a setback with the powder coating, and I forgot to take some parts to be coated.

Before I left for a family ski vacation I dropped off 34 parts, including the control arms, to be powder coated. I decided to have every bare steel part powder coated (including ones which are completely concealed).

I returned to pick up the parts only to discover that stating that "the ball joints are already welded in the control arms" wasn't enough information for the powder coater to do what was needed. Upon opening the bubble wrap, I noticed that they hadn't masked off the ball joints when they sandblasted the control arms.

Depending on who you listen to, this problem ranges from a major inconvenience to a complete disaster. I had a well-respected senior [forum](#) member provide me with a procedure to clean them and a well-known powder coater tell me that the ball joints are now junk.

With nothing to lose, I decided to try to clean them out. The provided procedure is:

1. Spray a lot of brake cleaner through the hole for the grease fitting.
2. Follow up with flushing it with Simple Green.
3. Install the grease fitting.
4. Flush with grease until you don't see any more sediment. You also need to "work" the joint and wipe out any sediment in-between flushing with more grease.

I chose to use "Green Grease" brand grease solely for its light green color. This made it easy to spot the black particles of sand and dust. It took several hours and two tubes of grease to clean *each* ball joint. Also, the brake cleaner attacks the powder coating, so it needed to be wiped off immediately after each spray.

As you can see in the pictures, the cleaning procedure worked, but it added a few days onto my build time.

This past weekend, I began assembly of the front suspension. My plan is to use *string* in place of the front shocks until they arrive (should be here in the next couple of weeks). I had to clean dust from the powder coating process out of the threads of the tubular parts using a brush on the end of my Dremel, but other than that most everything else went together fine. The only problem I had was that the mount for the rod eye had to be "spread" (with a breaker bar) in order to accommodate the rod eye.

I'd intended on finishing the front suspension assembly, but to my dismay, I discovered that somehow I missed having the bushing sleeves (used to mount the lower control arms to the chassis) powder coated.

I dropped them off today and hope to have them back my mid-week, at which point I'll pick up assembly of the front suspension.





Mark



Uncategorized



01F



March 5th, 2009



1 comment

I've been concentrating on fitting the floorpans this week with good success. There's a small panel which still needs to be addressed that's mounted behind the seats and it ties into the floorpan. I also need to drill the front of the floorpans where they meet the firewall but I'm waiting until I receive my order of additional cleco fasteners; maybe tomorrow.

You may also notice that the transmission and driveshaft tunnel areas aren't yet drilled. I want to wait until I'm further along with the car before I fit these pieces.

Going by the order laid out in the manual, I'm building the car in almost reverse order. But I can't do anything else; I'm waiting for at least one backordered part from each of the main assemblies. Some things off the top of my head which I'm still waiting for are:

- All brake rotors
- Front shocks
- Hardtop
- Windshield
- Gas tank
- Steering wheel

I still need to order a rear axle. I keep going back-and-forth about the gearing though (3.55 or 3.73). I'm afraid that 6th gear may be too high if I use a 3.55. Before I order that though, it would be helpful to have a bunch of parts powdercoated. I need to find a dependable powdercoater in the Phoenix area. I won't be able to work on the car the week of the 15th so it'd be nice to drop off some stuff to be powdercoated at the end of next week.

I may have found someone with a good reputation to supply me with an engine when I'm ready, too.

Yesterday, I ordered my [ISIS Power](#) system to use in place of the stock wiring harness. As a computer professional, I understand the concept of the ISIS system a lot better than a traditional "dumb" wiring harness.



Mark



Uncategorized



01S



March 1st, 2009



3 comments

Great progress was made this weekend. The firewall has been fitted (some minor grinding was necessary for a perfect fit) and drilled. The chassis has also been drilled to mate with the firewall.

Also, the trunk panels have all been drilled and fitted. They fit great and required no trimming so far. It's possible that like the firewall, they may need some minor trimming when mounting the body.

A special thanks to my friend John for lending a HUGE amount of help today. Without his help we couldn't have gotten the trunk finished (all except for the 3-link cover).



Mark



Uncategorized



er if



February 24th, 2009



3 comments

Today, my wife and I lifted the body off the chassis and set it aside. The light weight of the body was surprising. It's not structural in any way so I suppose it shouldn't have been *too* surprising.

After separating the body and chassis, I trimmed the body in the area of the firewall (using flat and round files) so it would fit nicely around the chassis. Trimming is probably optional, but I wanted it to be perfect.

Next I decided to mount the firewall in a perfectly centered position and then later I'll trim the edges of it to perfectly match-up with the body. After that step, I'll send it out to be powdercoated black.

I marked the area on the firewall in which I will be drilling holes for the rivets but couldn't proceed because I didn't have the proper sized drill bits. I considered using a size that was "close" and that would probably work, but in the end I opted to mail-order them and wait so it will be "just right".



Mark



Uncategorized



i ID



February 23rd, 2009



No comments

We took delivery of the kit on Thursday last week (February 19). My friend Jeff came over to help unload. Stewart Transport trucks have a crane mounted in them which made unloading a breeze. The most difficult part was pushing it up the driveway (which really wasn't that difficult).

The boys and I spent the weekend taking inventory of all the components and fasteners. Tonight, we'll start drilling holes in the sheetmetal for the floor, firewall, and trunk floor.





Mark



Uncategorized

